Open Books

Reviews of Recent Titles on Open Systems Subjects

In Search of Clusters: The Coming Battle in Lowly Parallel Computing

by Gregory F. Pfister
Prentice Hall PTR
439 pages, $42
ISBN# 0-13-437625-0

Managing Client/Server Environments: Tools and Strategies for Building Solutions

by John McConnell
Prentice Hall PTR
380 pages, $44
ISBN# 0-13-127176-8

In Search of Clusters: The Coming Battle in Lowly Parallel Computing

In Search of Clusters: The Coming Battle in Lowly Parallel Computing is intended for purchasers, sellers, planners, programmers, administrators, hardware designers, software architects and anyone else who is interested in servers or multiuser computer systems. This book does not focus on highly parallel or massively parallel computers, which serve a much smaller segment of the industry.

Pfister discusses both the hardware and the software of "lowly" parallel computers—both symmetric multiprocessing (SMP) and clusters of computers, which are offered by a variety of manufacturers. While the reader need not be a "techie" to profit from this book, a general familiarity with the current computing milieu is required. If you more or less understand the majority of the topics that are covered in the monthly computer magazines, you will have a sufficient background to profit from this book.

However, *In Search of Clusters* is not technically trivial. It discusses both parallel and distributed systems, offering fresh viewpoints that are probably of the most value to current owners and future purchasers of server systems. A holder of six patents in parallel processing and a Ph.D. from MIT, Pfister is clearly qualified to write a ponderous treatise on this topic. Yet, rather than using textbook seriousness, he has chosen a humorous style and frequently displays both his acerbic wit and satirical abilities, which help to make the book entertaining as well as informative.

Here are some fresh viewpoints for future server buyers.

Solid Information with Humor

An example of the informative side of this book is the 24-page annotated bibliography, which not only gives the references that are cited throughout the book but includes brief descriptions of each item. This enables those who are considering the pursuit of certain topics to have a better idea of what they are getting into.

An example of Pfister's satirical side is his analogy of a uniprocessor computer to a single dog, a cluster of computers to a pack of dogs and an SMP system to a "Savage Multiheaded Pooch," similar to Kerberos, the mythical dog who guarded the gates of Hades. He goes on to explain the strengths and weaknesses of the various types of dogs and computer systems.

In Search of Clusters shows how clustering is different from both highly parallel processing and distributed computing. Using a light, entertaining style, Pfister covers the primary hardware and software technologies that are used in clusters and explains why clusters have become popular. He includes the background material necessary to understand the real issues in designing and using the different types of clusters, the workloads they are good for and the programming techniques needed to use them efficiently.

The book also includes a full comparison—hardware, software and performance—between clusters and their main competition, symmetric multiprocessors. Pfister shows how popular benchmarks can be used to mislead users, particularly when measuring systems that are based on multiple-CPU configurations.

To increase readability, Pfister includes 86 figures and 17 tables, which are liberally distributed throughout the text to help organize information, clarify concepts and illustrate how different theories work. One example of his effective use of figures involves showing how a race condition can exist under certain conditions and how you can resolve it with a lock.

In Search of Clusters: The Coming Battle in Lowly Parallel Computing is an excellent book for those studying computer architecture, not to mention anyone who is considering buying a server-based system. Depending on the reader's needs, cluster-based systems may be more appropriate than a single large computer system or a symmetric multiprocessor system. This book gives you the critical information necessary to make an informed decision.

By Stephan M. Chan

Managing Client/Server Environments: Tools and Strategies for Building Solutions

Managing Client/Server Environments: Tools and Strategies for Building Solutions is a hands-on, practical—rather than abstract/theoretical—book, targeted to active system architects, developers and administrators who need advice and guidance in designing the next generation of computing solutions.

The book lays the necessary technical groundwork and then presents practical, specific solutions for managing the diverse networks that commonly coexist in today's business environment, such as those running over TCP/IP, SPX/IPX, SNA, DECnet and other protocols. When upgrading computer and network systems, you must choose among competing network management platforms. This can be done well only with an understanding of the various features and capabilities that are available, and the trade-offs that must be made.

McConnell shows how and where to instrument a network to properly monitor and measure its performance, as experienced by the end user. His interest in the end user, as opposed to in-house IS staff, contrasts with the situation old-time programmers may remember, when mainframe system administrators would come into staff meetings and report that "the system had 99.9 percent availability this past month." Almost everyone in the room would then break out in laughter or hoot in derision, because it seemed that the computer was always "down" when you needed it, and that "99.9 percent availability" was either a figment of someone's imagination or applied only to the system administration staff.

When designing a next-generation system, you must continue to maintain the legacy systems, while still offering the ability to evolve and support the rapidly growing network. All this would be difficult without the effective use of new network management tools that improve cost-effectiveness by enabling remote access.

Managing Client/Server Environments is divided into four major sections. The first section serves as an introduction to a discussion of the practical aspects of managing distributed systems and sets the stage for introducing the basic elements of a solution. McConnell starts by giving an overview of the basic set of problems that network and systems administrators must face and then moves on to discussing what is really needed in order to solve these tough problems.

The second section deals with infrastructure issues, such as architectural alternatives that can dictate the range of choices for building an effective management environment. Basic management disciplines—instrumentation, event management, automated discovery, problem management, inventory management and management platforms—are applied in a case study of a fictitious multinational organization. These disciplines and tools are then integrated and actual platforms that use the tools are presented, such as HP OpenView, IBM NetView and SunSoft Solstice, among others.

The third section covers the management of network devices, LANs, virtual LANs and system management tools. The fourth section ties all the individual pieces together and tells you how to set up a policy- and process-driven management solution.

New Technologies Discussed

McConnell also covers the benefits of new technologies, such as distributed/ intelligent collectors, the Distributed Computing Environment (DCE) and object-oriented technology. One example of the latter is from Tivoli Systems, which uses objects to encapsulate configuration profiles or policies, which then can be applied to sets of resources. This enables better control and simpler management and reduces staff effort and time.

Other new technologies that are discussed are asymmetric LAN switches, which enable multiple switch ports that can operate at more than one LAN speed; and LAN emulation, which enables variable-length datagrams inside a series of ATM cells. Also discussed are virtual LANs, which enable virtual workgroups to be set up without the restrictions associated with locations, speeds or local technologies.

Managing Client/Server Environments is clearly written and uses bold, large fonts and chapter/section numbers for section headers, which makes it easy to find your way around. Each set of paragraphs also has a header that describes the topic or subject covered in those paragraphs. The chapters frequently begin with an overview and end with a summary or checklist to help reinforce the topics presented. McConnell also makes effective use of numerous diagrams and figures to explain his concepts. One such figure shows how 155mbps ATM, 10mbps Ethernet and 4/16mbps Token Ring can be used to create virtual workgroups. Another shows how polling interval versus line speed can affect the load on a network link.

This book expands the scope of what is possible in today's client/server environments and points out critical issues and answers that should concern any computer professional in today's networked multivendor environment. It is a valuable, practical addition to any professional's library. IT

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